

REMARKS

Claims 1-7 are all the claims pending in the application.

Formal matters

Applicant thanks the Examiner for acknowledging claim to foreign priority and receipt of a certified copy of the priority document.

However, the Examiner has not indicated the status of the drawings. Therefore, Applicant respectfully requests the Examiner to accept the drawings as filed on October 20, 2003 in the next office action.

Claim objection / Allowable subject matter

Claim 3 stands objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. However, Applicant respectfully submits that the rewriting of claim 3 is unnecessary in light of the arguments below.

Claim rejections – 35 U.S.C. § 102

Claims 1-2 and 4 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,570,922 to Wang. Applicant respectfully traverses this rejection.

Claim 1 recites the feature of comparing the quantization parameter of the current frame calculated in step c with a predetermined minimum quantization parameter and determining a final quantization parameter. The Examiner maintains that this feature is met by virtue of the teachings of Wang at col. 7, lines 48-52.

However, at the cited portion of Wang, Wang describes calculating a remaining number of bits, R, whereby R is assigned a value of R minus the sum of the number of bits required for coding, t_n , where n' runs from 0 to n-1. Thus, Wang does not teach or otherwise disclose calculating a quantization parameter. Even assuming that the newly assigned R could somehow correspond to the claimed quantization parameter (which it does not) as the Examiner maintains, there is no disclosure of comparing the quantization parameter to a predetermined minimum quantization parameter, as set forth in claim 1. Moreover, since there is no predetermined minimum quantization parameter disclosed, it is logically impossible to determine a final quantization parameter from the comparison, as also set forth by the claim. Therefore, claim 1 is patentable over Wang for these reasons.

Claims 2 and 4 are patentable based on their dependencies.

Claim rejections – 35 U.S.C. § 103

Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Wang in view of U.S. Patent NO. 6,959,042 to Liu. Applicant respectfully traverses this rejection.

Claim 5 depends from independent claim 1, which has been shown above to be patentable over Wang. Liu does not cure the deficiencies of Wang. The Examiner cites the discussion of Liu at col. 12, lines 55-65; col. 13, lines 9-21; and col. 14, lines 45-67 as allegedly curing the deficiencies of Wang. However, at the cited portions, Liu is discussing the calculation of a complexity value. A quantization step size is obtained for each macroblock. Col. 12, lines 61-62. Then, a total number of bits and the quantization step size are multiplied to obtain a

complexity value. Col. 13, lines 15-17. Finally, Liu teaches that the complexity measure can be used in a variable bit rate encoding scheme to encode a certain video frame to maintain a certain video quality. Col. 14, lines 45 and 55-57. In other words, Liu merely teaches what is previously known in the prior art -- that is, to calculate a complexity value and use it in encoding. Thus, the teachings of Liu do not address any of the deficiencies of Wang, and most notably do not address, teach, or disclose comparing a quantization parameter with a predetermined minimum quantization parameter. Therefore, for these reasons, claim 5 is patentable over the Wang and Liu combination.

Claim 6 recites the feature of a movement estimation and compensation unit which estimates a movement vector and a Sum of Absolute Difference (SAD) using image data of an input current frame and image data of an immediately preceding frame stored in the frame memory. The Examiner admits that Wang does not disclose this feature, but cites the teachings of Liu at Fig. 4, element 168 and col. 6, lines 4-15 as allegedly curing this deficiency. However, Applicant respectfully disagrees.

In Fig. 4, Liu shows element 168 as a motion compensation. See col. 6, lines 9 and 17-19. However, at col. 6, lines 9 and 17-19, Liu only generally describes the motion compensation 168 as using an “iterative process” to reconstruct frames using a framestore memory 170. Thus, Liu does not disclose or teach calculating a movement vector or a Sum of Absolute Difference (SAD). Moreover, Liu also does not disclose or teach a Sum of the Absolute Difference (SAD). Therefore, for these reasons, claim 6 is patentable over the Wang and Liu combination.

Claim 7 is patentable over Wang and Liu based on its dependency.

With further regard to claim 7, claim 7 recites the feature of a quantization parameter determination unit which determines the quantization parameter on the basis of the complexity for each picture and the remaining bit amount for each picture. The Examiner maintains that this feature is met by the teachings of Wang at col. 28, lines 40-60. However, Applicant respectfully disagrees. At the cited portion of Wang, Wang teaches a transcoder 620, 630 which partially decompresses a bitstream and encodes the decompressed data at a different bit rate by using a different quantization parameter calculated according to a target bit rate signal from a rate control processor 605. col. 28, lines 40-46. Wang then teaches that rate control processor 605 receives the quantization parameter from the transcoder used to encode a current picture. Col. 28, lines 47-48. Thus, the cited portion of Wang does not explicitly teach a quantization parameter determining unit which determines a quantization parameter, as set forth in the claim. Rather, it would appear from the cited portion of Wang that the quantization parameter is already provided by the transcoder. Therefore, claim 7 is patentable over the Wang and Liu combination for this additional reason.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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